Norma Smith

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

February 17, 2005

MEMO TO: Don Lee, Berry Jenkins, Michael Taylor, John Bernhoft, Jay Bennett, Shannon Sweitzer, Judith Corley-Lay, Stuart Bourne, Jonathan Bivens, Jennifer Brandenburg, Brian Webb, John Couture, Dave Rankin and Dave Hurley

FROM: J. V. Barbour, P. E.
State Project Services Engineer

SUBJECT: AGC/Roadway Subcommittee Meeting Minutes
January 12, 2005

The subject committee met on January 12, 2005 at 10:00 a.m. in the Project Services Conference Room at the Century Center with the following in attendance:

Berry Jenkins	Dennis Jernigan	Ted Sherrod
Jay Bennett	Dave Hurley	Jim McMellon
Jonathan Bivens	Michael Taylor	Norma Smith
Randy Garris		

The following items were discussed:

1. **CADD FILES AVAILABILITY DURING BIDDING**

The Department asked the Industry for suggestions in providing the CADD files in a more accessible and user-friendly manner during the 3½ week bidding process. The Industry will send their suggestions to Randy Garris by e-mail.

2. **400 FOOT BUFFER**

The Department met with ACOE in December 2004 to present documentation for a graduated safety factor scale based on the quality of adjacent wetland. The ACOE rejected the documentation and continued to require 2X safety factor for lateral effect. However, the ACOE agreed to drop conservation easement requirement. The Department will revise the existing Project Special Provision SP1G111 *Contractor Borrow Source*, effective with the March 2005 letting and post a revised Skaggs Method. The revision will include T25 values for counties not formerly listed, T25 values for 1 inch and 2

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RALEIGH NC

inches of surface depressional storage in the adjacent wetland, method to calculate effective K or conductivity for the entire soil profile down to impervious layer, and a note regarding topographic differences may result in no lateral effect. See Attachment No. 1 for PSP and website for revised Skaggs method: http://www.doh.dot.state.nc.us/operations/dp_chief_eng/roadside/fieldops/Skaggs%20Method_Buffers.doc

TURBIDITY

Ted shared a letter from DWQ outlining turbidity standard applications. In summary, if BMPs are designed, installed, and maintained on borrow pit dewatering operations, DWQ will not seek enforcement. The Department is developing a BMP Implementation Protocol that will be incorporated in a PSP as soon as both agencies finalize this issue. The contractor will have to factor into his bid what level of BMP he needs to incorporate based on laboratory soils analysis from his borings. See Attachment No. 2

EC/STORMWATER CERTIFICATION FOR DOT/CONTRACTORS/CEI

The Department is investigating "Train the Trainer" requests. Level II classes are filling up for February and March 2005. The trainer can provide training at contractor's site for 50 or more attendees. See Attachment No. 3 and website for details and answers to FAQs. http://www.bae.ncsu.edu/workshops/dot/index.html.

3. **SECTION 225 (SEEDING SLOPES)**

Norma handed out a Proposed Project Special Provision for Roadway Excavation for review. Randy stated that it would be effective with the March 2005 Letting. The Industry suggested a slight wording change in paragraph No. 1. See Attachment No. 4 for revised version.

4. **FINAL INSPECTION PUNCH LIST**

The Department and Industry have developed a draft Final Inspection Punch List. Berry asked the members to review the draft and provide their comments to Shannon Sweitzer. See Attachment No. 5.

5. **STANDARD PRICE NEGOTIATIONS**

Berry asked for 2 Industry volunteers to work with the Department on addressing extra work and how the prices are developed. The goal is to make a fair and reasonable guide that would be adopted as a standard by the Industry and Department. Shannon Sweitzer will set up a meeting with the volunteers.

6. BORROW AND WASTE SITE RECLAMATION

Norma handed out a new project special provision for Borrow and Waste Site Reclamation Procedures that will be used, beginning with the February 2005 Letting. See Attachment No. 6 and website for borrow and waste site procedures: http://www.doh.dot.state.nc.us/preconstruct/highway/dsn_srvc/contracts/borrowwastesite20jan05.doc

7. CHANNEL STABILIZATION

The Industry asked if there has been any resolution on Channel Stabilization Inspection acceptance. The Industry is continuing to have trouble obtaining acceptance, due to several different people performing the inspection. The Department answered that there has been no finite response yet. This item will be added to next meeting agenda.

8. BREAKOUT SESSIONS

Berry handed out a list of topics for the breakout sessions of the upcoming conference. See Attachment No. 7.

9. ABC COURSE IN WINTER MONTHS

The Industry stated that the specifications are not really clear on placing ABC in the winter months. The Department replied that the concern is not the ABC but the subgrade, freeze thaw cycles in the winter. This item will be added to the next meeting agenda.

NEXT MEETING

The next meeting will be at 10:00 a.m. on March 16, 2005 in the Project Services Conference Room. The remaining meeting dates for 2005 are May 11, July 13, September 14 and November 9. All meetings will be at 10:00 a.m. in the Project Services Conference Room. You may want to reserve all day for the meeting in case they run long, or there is a need to make a field trip in the afternoon.

RAG: ns

cc: Randy Garris, P.E.
Steve DeWitt, P.E.
Ellis Powell, P.E.
Art McMillan, P.E.
Ted Sherrod, P.E.
Jim McMellon, P.E.
Dennis Jernigan, P.E.
Norma Smith

CONTRACTOR BORROW SOURCE 3-15-05

Revise the *2002 Standard Specifications* as follows:

Page 2-17, Article 230-4(C) Contractor Furnished Sources, add the following;

If the Contractor proposes a borrow source, the environmental assessment shall include wetland and stream delineation extending 400 feet beyond the proposed borrow source limits.

1. If wetlands or streams are present within 400 feet of the borrow source:

   Submit a hydrologic analysis (Skaggs Method) or equivalent to determine if lateral effects will permanently impact or cause degradation to wetlands or streams. The analysis shall be performed by an environmental or hydraulics engineer with expertise in this discipline and shall consist of, but not be limited to:

   Hydric soil type
   Average profile depth to restrictive soil layer
   Effective hydraulic conductivity or permeability
   Average drainable porosity or available water capacity
   Required buffer width, including safety factor

2. If wetlands or streams are present within 400 feet and the contractor does not propose to excavate below the seasonal high water table or the water level in the adjacent stream, no documentation will be required.

3. If wetlands or streams are not present within 400 feet, no additional documentation will be required

During Department review of the proposed borrow area, the hydrologic analysis will be submitted to the U. S. Army Corps of Engineers for evaluation.

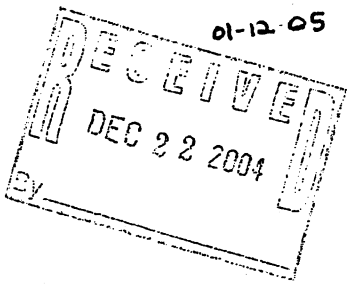
Obtain copy of Skaggs Method for Determining Lateral Effects of a Borrow Pit on Adjacent Wetlands, revised 3/15/05, from Roadside Environmental Unit web site:
http://www.doh.dot.state.nc.us/preconstruct/highway/dsn_srvc/contracts/letting.htm
Copies may also be obtained from Room 558, Transportation Building, 1 S. Wilmington Street, Raleigh, NC 27601.

SP1G111

North Carolina Department of Environment and Natural Resources

Alan W. Klimek, P.E. Director
Division of Water Quality

01-12-05



December 16, 2004

Mr. Steven D. DeWitt, P.E.
Director of Construction
1520 Mail Service Center
Raleigh, NC 27699-1543

Dear Mr. DeWitt:

Subject: Turbidity Standard Application

This letter is to respond to the issues raised in your October 13, 2004 letter regarding the enforcement of the turbidity standard at DOT borrow pit mining operations. We realize the technical challenge of meeting the turbidity standards and offer the following comments and guidance that will hopefully clarify some of the issues regarding compliance.

1. The application of the water quality standards, as expressed in the third paragraph of your October 13th letter, are properly stated. The water quality standards of 50, 25 and 10 NTU's do apply in all of the waters of the state.
2. As provided in the DWQ-approved DOT construction permit, these turbidity standards are in-stream requirements, not end-of-pipe effluent limits. (For commercial operations subject to the Mining Act a different permit applies and should be consulted.)
3. In accordance with the Environmental Management Commission's rules on turbidity, "if turbidity exceeds these levels (50, 25, or 10 NTU's) due to natural background conditions, the existing turbidity level cannot be increased." Deriving the natural background level is always a site-specific determination. We enforce the background level exceedence as an "instantaneous background" situation. We measure an instantaneous reading upstream and as long as the downstream value is not increased at the same time of measurement, we consider the numeric turbidity standard to be met.
4. As to your question on where should turbidity measurements be made to determine the background levels in field situations with no upstream flow, we believe those should all be made on a case by case basis. Our rules require enforcement of the turbidity standard in the state's "waters" but at times, determining where those "waters" actually begin is not always straightforward. Therefore, we believe an on-site determination is best .
5. We appreciate that borrow pit mining operations do present very difficult technical challenges in meeting the turbidity limits and we appreciate the efforts your organization has made to increase the level of technical skills that are applied in these situations. Furthermore, we believe that our present enforcement policy which is applied to similar land disturbing activities across the state should also be applied to the DOT pit mining operations. We focus our enforcement initiatives, especially those where civil penalties are assessed, to those facilities that are not in full compliance with the approved BMPs. The Environmental Management Commission has clearly expressed its desire to prioritize its

enforcement resources in this direction and our DOT compliance enforcement will be consistent with our existing statewide policy for similar activities.

In order to establish what the appropriate BMP criteria for pit mining might be, we propose that our two organizations prepare a BMP Implementation Protocol that we would use to determine BMP compliance. We ask that your agency prepare the first draft of this "Protocol." We will review it with our Land Resources Division and our own Environmental Sciences Section staff to assist you in developing the most effective BMP's practicable.

Additionally, in an effort to minimize and/or possibly eliminate turbidity problems at borrow pits yet to be located, DWQ highly encourages that the guidance and technical specifications for locating these activities be amended. Our water quality rules have always guided the placement of discharge locations away from intermittent streams. Encouraging the location of discharge pipes from borrow pits away from the smaller, sensitive streams, toward larger streams could be an efficient protective action. Also, encouraging mining pit operations to utilize adjacent lands for land application or lengthening the travel time of effluents would also help reduce turbidities. In placement specifications, we also recommend that the cation exchange capacity (CEC) be used as an indicator for soil groups with a high potential for causing turbidity violations in the mine dewatering discharge. We believe that soils with a CEC greater than 15 are likely to create conditions in the mine dewatering discharge that would be difficult to treat. Finally, DWQ would recommend the implementation of "enhanced" BMPs for any future borrow pits that contain soils with CECs exceeding 15.

I hope this is helpful. If you have any questions, Tom Reeder will be our contact with our Division. He can be reached at 919.733.5083 ext 528.

Sincerely,

Coleen H. Sullins

Proposed 01-12-05

NCDOT TURBIDITY REDUCTION OPTIONS FOR BORROW PITS

DRAFT: 12/1/04

Method	Description	Positive Aspects	Negative Aspects	Comments
Stilling Basin (Standard BMP)	These are small detention basins with baffles that pit water is pumped and allowed time for suspended material to settle. Baffles can be constructed of stone or sediment control fence. Flashboard riser can also be used to control the water level.	Basins are easy to build and maintain. They provide further treatment before pit water is discharged to the environment on a continuous basis	Basins are only 68-72% effective at removing total suspended solids under normal conditions. If turbidity (>50 NTUs) is encountered then additional BMPs may be needed. These types of basins alone are ineffective at removing fine or colloidal particles.	Outlet water should be drawn from the surface. Basin sized according to 1800 cu ft per disturbed acre. Pump capacity can also be used to extend settling time.
1) ***Silt Bag***	Pit water is pumped through a water permeable fabric bag resting on a bed of stone to increase bag discharge area. PAM can also be introduced in the pump system for enhanced sediment removal	Easy to install and remove bag. Effective at removing large size particles. Only a small footprint is required.	Silt bag is limited to a certain flow rate and bag does not remove fine or colloidal particles unless a PAM treatment is also used.	Addition of PAM may cause floc to seal bag.
2) ***Aluminum Sulfate (Alum)***	A granular coagulant material added by spreader to pit water and settle out suspended material. Maximum rate is 25 lb./1,000 cu. ft. of water and keep below 250 PPM sulfate.	Inexpensive and relatively easy to apply. Works well on clay particles. PAM can also be used when a re-suspension occurs	A toxicity (tox.) test is required because of a potential pH shift. Also, a background test of iron and aluminum present in the pit should be conducted. May take 1-2 days to clear water.	pH needs to be above 5.5 to avoid toxic level of aluminum. May need lime for pH adjustment.
3) ***Gypsum***	A powdered coagulant material added by spreader to pit water and settles out suspended material. Maximum rate is 30 lb per 1,000 cu ft of water to keep below 250 ppm sulfate	Relatively easy to spread and takes around two-days to clear the water column before pumping from water surface.	Requires much larger quantities of material (100 times) that of aluminum sulfate and a toxicity (tox) test. Can resuspend in large pits on windy days.	Also can produce pH shifts.
4) ***Polyacrylamide (PAMs)***	A broad range of flocculants in liquid, powder, & solid forms to chemically bind sediment particles together and settle out	Works well under a variety of conditions. Does not affect pH and is not toxic to aquatic organisms at recommended levels.	Needs technical oversight for setup and water test for best product and equipment match. May not work on some clay materials.	Keep sulfate levels below 250 ppm. Use only anion types. Should not be applied directly to surface waters of the state. Instead, application should be through a stilling basin or other structure.
5) ***Land Application (Irrigation)***	Water from pit is pumped to irrigate agricultural crops	Rain and pit water are used by agricultural crops and there is no non-discharge permit required.	Irrigation activity can have no discharge into surface waters and there is no violations of the Capacity Use permit. Limits exist as to the distance that irrigation pipe can be extended.	No chemicals can be added to water being applied.

NCDOT TURBIDITY REDUCTION OPTIONS FOR BORROW PITS

DRAFT: 12/1/04

Method	Description	Positive Aspects	Negative Aspects	Comments
6) ***Well Point Pumping (Soil Filtration)***	Pit is dewatered by a series of shallow wells surrounding the pit at approximately 20' intervals	Water can be directly discharged to the environment without tox. testing	Rainwater is a problem and can create turbid waters in the pit. Must be treated before being discharged to the environment usually with flocculant because drawdown of pit exceeds filtering capacity of soil.	If iron levels are high in pit water, discharge must pass through a stilling basin.
7) ***Impoundment (Detention)***	Large detention basin used for storage, evaporation, and sedimentation of pumped water from the pit	There would be a slow release from this basin after material has settled out and discharged through an outflow pipe	In some areas land for impoundment maybe hard to find due to the size and location of the basin. Very fine material will not settle in some cases.	Storm events often resuspend settled particles.
8) ***Cell Mining***	The borrow pit is divided into cells and water is pumped out of one cell into another so a specific cell can be mined dry	There is no immediate discharge from the pit	Extra movement of discharged water from one cell to another within the pit. Wastewater from the pit will have to be discharged some time during the active life of the pit.	Limiting factor maybe volume of water to be moved.
9) ***Sand - Media Filtration***	Water from the pit is passed through a floc sock if needed and into multi-chamber sand media filter for treatment	Treated water can be discharged directly to the environment.	The rental rate for this equipment is very costly. May want to consider buying equipment and moving system around to different locations.	Proper pump rate and prefiltration must take place and monitored closely. Can be used after flocculants.
10) ***Wet Mining***	Material from pit is removed wet and placed on higher ground to drain before being moved to job site	There is no discharge from the pit	Material from pit is handled twice, land needed for stockpiling material, and time needed for pile to dry.	No water quality impact (self contained)

NOTES:

1) Chart arranged from the least (1) to more effective BMP method (10) for turbidity reduction.
2) BMP's 6-10 will be considered when 401 WQ Certification requires protection for rare or unique resources
3) An evaluation of the pit soil's cation exchange capacity should be included as part of the bid estimate.
4) Many of these turbidity reduction techniques can be combined to provide further treatment such as impoundments combined with a coagulant or a flocculant.

NCDOT Erosion & Sediment Control / Stormwater Certification

The Biological and Agricultural Engineering Department at North Carolina State University is partnering with NCDOT to offer an Erosion & Sediment Control/Stormwater certification program to ensure compliance with erosion and sediment control /stormwater provisions on NCDOT projects and to provide comprehensive training of inspectors, project managers, contractors, and designers.

Erosion & Sediment Control / Stormwater Inspector/Installer
$105 8:00 a.m. - 4:30 p.m. Includes Written Exam
This one-day course is designed for those who install or inspect the installation of erosion/sediment control devices and the establishment of vegetation. The emphasis is on quality control concepts, such as proper materials for silt fence, erosion control blanket, seed and mulch, etc. Also covered is proper installation of various erosion and sediment control / stormwater devices and turf establishment items. Both erosion and sediment control techniques and turf establishment methods will be taught. Other topics include an overview of permit requirements, proper riprap placement, soil erodibility, pertinent specifications, and standard detail drawings. This course is taught entirely in the classroom.
Who should attend:
Agency/CEI: NCDOT and CEI personnel inspecting seeding, mulching, silt fence placement, topsoil placement, erosion control blanket installation, riprap placement, inlet protection, culvert installations in water bodies and embankment construction near rivers, lakes, and streams.
Contractor: Crew supervisor of turf establishment/seeding contractor, grading contractor and bridge contractor personnel installing temporary erosion and sediment control / stormwater devices.

Erosion & Sediment Control / Stormwater Site Management
$105 8:00 a.m. - 4:30 p.m. Includes Written Exam
This one-day course is designed for those who supervise, run, or direct grading work, culvert replacement work, and bridge construction work over rivers and streams. This course will cover permit requirements, roles and responsibilities, applicable specifications and interpretation, and best management practices to minimize or control erosion and sedimentation. Other topics include soil erodibility, turf establishment techniques, grading techniques to minimize erosion, timing of installations, and proper installation of best management practices. Also covered will be implementation of the erosion/sediment control plan, requirements of various regulatory agencies, and consequences of permit violations. This course is taught entirely in the classroom.
Who should attend:
Agency/CEI: Personnel acting as project engineer, project supervisors, and chief inspectors on grading projects, culvert replacement projects, and bridge construction projects over rivers or streams. Minimum of one certified individual per project.
Contractor: Superintendent/foreman in charge of grading activities. Superintendent/foreman in charge of bridge and culvert activities over rivers and streams. Superintendent/supervisor of turf establishment/seeding contractor. Utility contractors. Bridge construction personnel directing river pier construction, channel work, approach embankment construction, riprap placement, and related construction activities over rivers and streams. Grading and bridge contractor personnel assigned to conduct NPDES sites inspections and fill out NPDES weekly log. Minimum of one certified individual for each type of work, i.e. grading, bridge construction, turf establishment, culvert replacement, and utility construction.

Design of Stormwater Pollution Prevention Plans
$TBD 8:00 a.m. - 4:30 p.m. Includes Written Exam
This two-day course is for those who are involved with the design of erosion and sediment control and stormwater pollution prevention plans and reclamation plans. The course will focus on the design elements to be included in the plan. The course covers permit requirements, design standards, specifications, and special provisions. Also included are design detail drawings, and standard sheets. The course emphasizes selection and design of appropriate best management practices (BMPs), proper location of BMPs, and application of bid payment items. Permanent and temporary erosion/sediment control design elements as well as establishment of temporary or permanent vegetative cover will be covered. Other subjects include the permit application process, soil erodibility, channel stabilization techniques, an overview of soil bioengineering methods, and new methods/devices for controlling erosion and sedimentation. This course is taught entirely in the classroom.
Who should attend:
Agency: NCDOT Engineers and Technicians who prepare or oversee the design and preparation of erosion and sediment control and stormwater pollution prevention plans and reclamation plans.
Contractor/CEI: Design team leaders, Engineers, Engineering Assistants, and Technicians who prepare or oversee the design and preparation of erosion and sediment control and stormwater pollution prevention plans and reclamation plans.

2005 Course Schedule:

Erosion & Sediment Control / Stormwater Site Management

Raleigh, North Carolina
February 22, 2005
McKimmon Conference & Training Center

Winston Salem, North Carolina
February 24, 2005
Forsyth County Agricultural Center

Wilmington, North Carolina
March 9, 2005
New Hanover Cooperative Extension Center

Greenville, North Carolina
March 10, 2005
Pitt Country Agricultural Center

Asheville, North Carolina
March 29, 2005
North Carolina Arboretum

Gastonia, North Carolina
March 30, 2005
Gaston County Citizens Resource Center

ROADWAY EXCAVATION

03-15-05

Install erosion control measures as required by the plans prior to any kind of land-disturbing activity.

1. Unless otherwise required by the plans, construct embankments in such a manner that cut and fill slopes are completely graded to final slopes in a continuous operation, and permanently seeded and mulched in accordance with the requirements of the Specifications.

2. Should the Contractor fail to comply with the requirements specified in No. 1 above within the time frames established by the *Sedimentation and Pollution Control Act*, the Contractor shall perform temporary seeding and mulching on any exposed areas at his own expense.

3. When the Contractor fails or neglects to coordinate grading with the permanent seeding and mulching operation, the Engineer may suspend the Contractor's grading operation in accordance with the provisions of Article 108-7 of the *Standard Specifications* until the work is coordinated in a manner acceptable to the Engineer. Failure to perform the directed work may result in the Engineer having the work performed in accordance with Article 105-16 of the *Standard Specifications*.

SP2R25

Final Inspection
Common Punch List Items

Asphalt Pavement
- Good ride quality
- Longitudinal joints in correct location (not under wheel path)
- Transverse and longitudinal joints are smooth
- No Fuel spills on asphalt and shoulders
- No segregation
- Correct cross slope
- No standing water or water stains
- Valve and manholes adjusted to proper height
- Driveways (tie-ins, widths)

Concrete Pavement
- All spalls/ cracks repaired
- Joint sealed

Pavement Marking
- Stop bars/ cross walks/ arrows/ symbols per plan or specification
- Thermoplastic/paint workmanship (straight, weeps in thermoplastic, right color, width, excess marking removed, not placed over mud or dirt)
- Retroreflectivity of thermoplastic/paint
- Roadway delineators (flexible and roadway)

Signs
- Installed per plan
- Correct orientation
- Cleaned
- John Schleigh's list completed
- Sign lighting inspected by Division

Grading Items
- No standing water in ditches, yards, etc
- Slopes graded to correct cross slope (to include median ditches)
- Project properly vegetated or seeded (no weak or bare areas)
- All washes repaired and seeded
- No more than one inch drop-off at EP
- Mowing or topdressing has been performed
- Erosion control measures removed unless otherwise directed

Guardrail/guiderail/barrier
- Proper installation per Standard Drawings and manufacturer installation procedures
- Cross slope per standard drawing

- Clear roadside recovery zone
- Workmanship (correct height, bolts on correct side and tight, good rail, tension on wire, delineators, good finish on barrier, clean)
- End units (correct type, proper grading ahead and around unit, reflectorization, cable tightness)

Drainage
- Drainage structures cleaned out
- Pipes are flush with inside wall of box/ inverts poured
- Pipes sealed properly
- Frames and boxes grouted where weep was left during grading
- Correct type of grate
- Grate does not rock
- Steps installed
- Pipes clean
- Not missing expansion joint material between box and apron, expansion joint sealed
- Aprons are not damaged

Miscellaneous Concrete
- Sidewalk (good finish, joint spacing, no cracks, writing, or footprints)
- Curb and gutter (good finish, joint spacing, no standing water, cracks replaced or sawed and sealed, joints sealed)

Fence
- No damaged areas
- Trees/ debris removed

Signals
- Inspected by Division Traffic Services
- No stone in bottom of pullboxes
- Signal head clearance
- Improper welding or grounding

Overhead lighting
- Inspected by Division Traffic Services

Water/Sewer
- Fire hydrants on
- Water valves located and adjusted
- Service owner satisfied

Borrow/Waste
- Pits reviewed with property owners
- Plan matches actual final condition of pit

- All erosion control measures removed unless otherwise directed
- Pit has been seeded with stand of grass established
- Graded to drain
- All washes repaired and seeded

General

- Rocks and asphalt/concrete chunks removed
- All stockpile areas cleaned and seeded and mulched
- Trash picked up
- Mail boxes adjusted/ relocated

Structures

- Asphalt not placed in bridge wingwalls
- Evasote Joint Repairs – Inspect joints for spalling, excess glue on evasote seal, splitting of seal at splice, properly installed evasote that is firmly bonded to joint opening, damage to coating on armored angles, weep holes in angle should not have voids, sound the metal angle for voids
- Water test expansion joint seals as required in the project special provisions
- Sound stay in place metal decking – 50% - additional sounding if find problems
- Clean concrete slurry from deck and barrier rail after grooving deck
- Clean tack, oil, dirt, and debris from deck
- Inspect Bearing position in relation to anchor bolts to ensure sufficient space for future movement. Make adjustments as needed.
- Remove concrete slurry from girders
- Repair damaged paint on girders and diaphragms with same paint used by the fabricator
- Painting welds on sole plates
- Painting ends of tie rods (concrete girders) with NCDOT approved bush on zinc rich paint
- Recess and seal expansion joint material between slope protection / end bents / wings
- Recess and properly patch exposed form ties
- Clean aluminum handrail and tighten all bolted connections
- Check bolted endblock connection on aluminum handrail to ensure a bolt that can be removed and
- Reinstalled – not just threaded rod epoxied in place
- Check guardrail anchor system – patch spalling from drilling operation, tighten nuts, make sure proper number of posts (even if have to field drill rail to install end post near at backwall)
- Install barrier delineators
- Install weep drain extensions
- Clean tops of caps and epoxy caps as required by plans – check and repair damaged epoxy as needed
- Properly install pvc pipe, nuts, washers, and burr threads on anchor bolts
- Remove all forming materials from end bent joints

- Remove form fins from bottom of interior bent caps, bottom of overhangs, and other chamfered edges
- Patch overhang jack holes
- Point and patch substructure as needed (deep air bubbles larger than a dime). Make sure final surface finish is uniform – avoid spotty looking patchwork
- Review end bent caps and around perimeter of slope protection for scour holes – fill with flowable fill as needed
- Trim top of permanent casing on drill shaft to elevation of concrete and remove column forming support aids
- Paint deck drain pipes and/or extend them on steel girder bridges
- Recess and seal expansion joint material between cored slabs and end blocks and interior bents
- Install expansion joint material or backer rod in barrier rail at interior bents and seal

This list is not all inclusive of the items needed for final accceptance and should serve as a list of common items needing attention prior to the Department performing a final inspection.

BORROW AND WASTE SITE RECLAMATION PROCEDURES 02-15-05

The Department's Borrow and Waste Site Reclamation Procedures for Contracted Projects have been revised and are available on the website at:
http://www.doh.dot.state.nc.us/preconstruct/highway/dsn_srvc/contracts/letting.htm
In accordance with Article 230-4 and Section 802 of the *Standard Specifications*, the Contractor shall utilize these revised procedures for all borrow and waste sites on this project.

SP1G120

Breakout Sessions

(4 breakouts, A&B are the same topics, C&D are the same topics, attendees will switch groups for the second breakout session, this way everyone will be able to hear and propose solutions to all issues)

Breakout "A" & "B" Issues

- The "rank and file" employees of both the Department and the industry do not work together to resolve issues as much as they could.
- Partnering, respect and cooperation seems to be missing from our projects in many cases.
- Issues need to be resolved at the project level. Not escalated from the RE's office to Raleigh without trying to resolve at the Division level.
- We have too many claims.
- Only legitimate claims need to be submitted.
- Claims seem to be taken personally in many cases.
- Prices submitted for extra work need to be complete and realistic, not submitted too high with the expectation of negotiating down.
- Prices for extra work need to be reviewed with an open mind, not just comparing to bid averages.
- Plan errors and plan revisions take too long to get resolved.
- All project personnel need to be aware of issues such as permit requirements.
- Contractors should be more responsible for quality control and not depend on DOT to catch problems.
- Sometimes monthly estimate payments of contract items are left off or incorrect.
- Sometimes claims are submitted improperly and/or proper record keeping has not occurred after notice of intent.
- Final inspections: Too many items on a punchlist; Too many punchlists from different individuals.
- Contractors need to manage their subcontractors at all times and not depend upon the DOT to manage their projects.
- Often there are differences of opinion as how to implement some of the EC measures. This causes confusion with the contractor as well as the Department's on-site project personnel.

Breakout "C" & "D" Issues

- There needs to be open lines of communication at all times between Contractor and DOT personnel.
- All parties need to understand their role in achieving a quality project.
- Many times there are too many asphalt mixes on the same project.
- Many times inspectors and contractor personnel do not have the same understanding with respect to the work to be performed. For instance, understanding the principles of how an asphalt paving machine works can benefit the inspector as well as the operator.
- Specifications for asphalt pavement to do not address the differing conditions encountered on many secondary road projects.
- Many Contractors do not know DOT Division personnel, even in the areas where they regularly work.
- There is no open forum for feedback between Contractors and DOT to communicate expectations.
- There seems to be a focus on production rather than quality in many cases.
- Environmental, quality, and project completion records are not covered in the prequalification requirements.
- Too many decisions get elevated rather than being resolved at the lowest level possible.
- Time between advertisement and bid submittal is too short.
- The final estimate process is too slow.
- At times Department personnel observe rather than influence.
- On some projects the Department needs to respond more quickly to requests, submissions, etc brought by the contractor. There is also a need for the Department to insure adequate staffing of the project in order that the contractor is not delayed.
- Project submittals take too long on traditional projects. Why cant the turn around time for submittals be quicker?